

Brush Management (Acre) 314

DEFINITION

Removal, reduction, or manipulation of non-herbaceous plants.

PURPOSES

This practice may be applied as part of a conservation system to accomplish one or more of the following purposes:

- Restore natural plant community balance.
- Create the desired plant community.
- Reduce competition for space, moisture, and sunlight between desired and unwanted plants.
- Manage noxious, woody plants.
- Restore desired vegetative cover to protect soils, control erosion, reduce sediment, improve water quality and enhance stream flow.
- Maintain or enhance wildlife habitat including that associated with threatened and endangered species.
- Improve forage accessibility, quality, and quantity for livestock.
- Protect life and property from wildfire hazards.
- Improve visibility and access for handling livestock.
- Act as a barrier to humans and animals in restricting use on sites as high erosion hazards.

CONDITIONS WHERE PRACTICE APPLIES

1. On brush-infested land having the potential to produce desirable native or adapted forage plants.
2. Where adjustments in grazing management alone will not restore the kind of plant cover needed to attain conservation objectives within a reasonable time.
3. Where brush management will improve areas for wildlife, recreation, or natural beauty.
4. Where control of woody species is necessary to conserve moisture.
5. Where a reduction of brush is necessary to the safety of life and property in areas of high wildfire hazard.
6. Where noxious, woody plants are present.
7. On areas where a natural or desired plant community does not exist due to large brush species populations.

CRITERIA

General Criteria Applicable For All Purposes

Brush management will be designed to achieve the desired plant community in woody plant density, canopy cover, or height.

Brush management will be applied in a manner to achieve the desired control of the target woody species and protection of desired species.

This will be accomplished by mechanical, chemical, biological, prescribed burning, or a combination of these methods.

Prescribed Grazing (Code 528A) shall be applied to ensure desired response from treatments where the intended use is forage production.

Herbaceous and woody vegetation underbrush does not include economically, commercially or

environmentally desirable blocks of tree species found along scenic and recreational rivers, lakes and streams or along scenic roads and highways. Riparian corridors may not be economically feasible to use brush management. Any brush management treatment next to an inland lake or stream may require a local, state or possible federal (property) permit.

Additional Criteria For Improving Wildlife Habitat

Brush management will be planned and applied in a manner to meet the habitat requirements of the wildlife of concern.

Brush management will be planned in a manner that it will not adversely affect threatened or endangered species or their habitats. The following areas of critically important wildlife habitat will be pointed out and landowners will be encouraged to exclude them from herbicide spray patterns:

1. Where slope of the land provides opportunity, leave brush areas on steep escarpments, ravines, rocky hillsides, and other rough formations.
2. Tree-lined drainage ways.
3. The leaving of 5 to 20 percent canopy of trees, shrubs, and vines is considered beneficial to most wildlife species. A larger percent of the land may be left in brush if the landowner so desires and adequate soil protection is attained. Emphasis should be given to maintaining the desirable amount of cover for wildlife species to be managed or benefited.
4. When brush is being managed to improve forages in pasture, consideration should be given to leaving selected areas of desirable food and cover plants for wildlife. The type of cover and size of the areas to be retained depends on the type of wildlife being benefited. Scattered areas as small as 1/4 acre can be beneficial to most species of upland wildlife.
5. Where wildlife is to be the primary user of the habitat, manage brush to provide travel lanes, escape cover, loafing areas, and browse plants. The following are examples:

- a) On areas of uniform slopes, leave strips or clumps of brush to provide food and cover.
- b) Where they occur in brush areas, leave fruit and mast trees to produce food for wildlife.
- c) In mixed brush, less desirable species may be controlled to promote the development of the more important plant species, which contribute to wildlife food and cover.
- d) Native woody plants especially valuable for food and cover for wildlife are listed in conservation management sheet - Shrub Plantings for Wildlife. Relative importance of species may change from one location to another due to the influence of plant associations, soils, climate, and stage of maturity.

Additional Criteria For Reducing Wildfire Hazards

Control undesirable woody plants in a manner that creates the desired plant community, which does not provide wildfire hazard conditions.

Additional Criteria for Mechanical Control or Prescribed Burning Control

Mechanical and Prescribed Burning will be done at a time that cutting or fire is most critical to control the target brush species. In some cases, forage production may have to be sacrificed in the adjacent area of brush control applications. All Michigan, county and local and tribal laws and regulations for brush control must be followed. Obtain needed permits from local and state authorities.

Mechanical brush treatment and controlled burning should be timed to prevent exposure of bare soil for extended periods of time. Follow the Prescribed Burning standard (338) when using this control method. Extreme care should be followed when using controlled burning to manage brush in or adjacent to forested areas.

Additional Criteria for Consideration of Cultural Resources and Cultural Values

Cultural resources will be considered when planning this practice.

Where appropriate, local cultural values will be incorporated into practice design in a technically sound manner.

Compliance with all applicable federal, state and local laws and regulations, including permits, permissions, or notifications is required.

Consider the potential effects of installation and operation of (practice) on the cultural, archeological, historic and economic resources.

Additional Criteria for Chemical Control

Any herbicide recommended or used to control woody species must be federally and locally registered and must be applied strictly in accordance with registered uses, directions on the label, and other federal or state policies and requirements. The safety measures for the user must be adhered to at all times. Follow NRCS practice standard Pest Management (595) for all pesticides used.

Preferred methods of herbicide treatment may include:

Foliage Stem Spraying - Herbicide sprays are applied to the stem and foliage. This type of application is least effective on resprouting species. Application should be made from the time that leaves are fully expanded in the spring until fall color. Preventing drift to surrounding areas is more difficult with this method. Low-pressure coarse spraying with drift reduction additives is recommended.

Basal Bark Application - Basal spraying is a technique to deaden small trees, shrubs and occasionally vines by spraying the green bark of the lower trunk (12 to 18 inches or 30 to 46 cm) with herbicide. The intent is for the herbicide to penetrate the bark and kill the tree and any basal buds that might sprout. Herbicides used for basal spraying are generally applied in oil carriers. The technique is effective on species less than four to six inches in diameter. As bark becomes rougher and thicker, this

technique becomes less effective. Care must be taken when herbicide is applied to minimize the amount that runs into the soil. This is important from a soil quality standpoint as well as to avoid damaging non-target woody species.

Cut Stump Application - The chemical is applied to freshly cut stump surfaces. Treat before the cut surface dries (within two to three hours after cutting) for optimum control. The area of the stump that should be treated depends on the formulation of herbicide used. Many of the herbicides labeled for cut stump application are water-soluble. It is not necessary to treat the entire stump with these materials. The critical area of the stump must be treated to prevent sprouting in the sapwood and bark of the stump's cut surface. Stump treatment with the water-soluble herbicides must be done immediately after cutting the tree or vine in order to be effective.

Other herbicides labeled for cut stump applications are formulated to be mixed with oil. These herbicides do not move readily within the plant, but penetrate the bark. To be effective in suppressing stump sprouting, the entire stump, and particularly the bark and exposed roots, must be thoroughly sprayed. Timing is critical with these materials because they are not so dependent on movement downward from the cut surface to distribute the herbicide. In situations where immediate treatment of stumps is not possible, use a herbicide with an oil carrier rather than one with a water carrier. Treatment with an oil carrier herbicide is recommended in the spring when treating species that exhibit a spring "sap flow." Water-carrier herbicides will usually not be adequately absorbed to be effective during the spring "sap flow."

Frill, Hatchet, or Girdling Application - Frilling and girdling are methods of controlling standing trees and shrubs that may be done with or without a herbicide. The bark around the base of the trunk is cut and the herbicide is either applied as a separate step or injected simultaneously in the cambium area. These techniques require a considerable amount of time and labor to implement.

Tree Injection with Spaced Cuts Application - Tree injection involves introducing an herbicide into the undesirable species through spaced cuts made around the trunk of the woody plant with an axe,

hatchet or tree injector. The amount of herbicide to be placed in the cut is specified on the herbicide label. There are various tree injectors available such as "hypo-hatchet," which is a hatchet constructed to inject herbicide when it is struck into the tree.

Soil Application - This type of treatment includes pellets, beads, granules or concentrated liquids. The herbicide moves through the soil to the root zone and translocates upward to kill the plant. Treatment is usually made at the base of the plant within the dripline. Nearby trees may be injured or killed if their roots extend into the treated area. Soil-applied herbicides usually remain active in the soil for several months or even years. Treatments can be made at any time of the year when the ground is not frozen, but control will only occur after sufficient rain has fallen. This method should only be used on non-erosive soils.

Woody plants vary among species in susceptibility to herbicides, and accurate knowledge of identification of target species is essential.

CONSIDERATIONS

Timing and sequence of brush management in a pasture and/or the entire operating unit should be planned to ensure needed grazing management. One may have to use a combination of treatments to control some brush species. Some treatments can actually increase brush species populations if the target species is not properly identified and the proper treatment method chosen.

Consider soil erosion potential and difficulty of vegetation establishment when choosing a method of control that causes soil disturbance.

In planning this practice, cost estimates of applying the practice should be compared to economic benefits.

PLANS AND SPECIFICATIONS

The kind and density of the species present along with the land use objective will determine the type of brush management planning on pastureland or other land.

Density is based on percent crown canopy of the dominant and associated species. Crown canopy is defined as the percent of the ground shaded by a species with the sun in a vertical position over it. Brush management treatment priorities are determined by the percent crown canopy of the target species.

A high priority would indicate that target species are reducing the growth of desirable species by almost 100 percent.

A medium priority indicates that the target species is significantly reducing the growth of desirable herbaceous vegetation. Certain target species such as Multiflora Rose, Glossy Buckthorn and Russian Olive provide a seed source that is capable of serious infestations.

Target species that occur at lower frequencies usually are not considered a priority for treatment economically.

Grazing management and other management practices can generally control undesirable species that occur at low densities.

Plans and specifications will be prepared for each pasture, field, or management unit where brush management will be applied.

Plans and specifications will be based on the practice standard.

All brush management plans will include the following core information:

- Maps or detailed drawings showing areas to be treated and areas to be left undisturbed in acres
- Dates of planned treatment
- Job sheets or similar detailed documents showing brush canopy and/or species count or transect line locations and percent canopy or species numbers per acre of the target plant(s).

In addition, mechanical treatment methods will include:

- Technique or procedure to be used (hand cutting with a 6-inch axe, brush-hog type mower)
- Adjustments or modifications needed to equipment if any
- Timing of treatment

In addition to core information, Prescribed Burning treatment for brush management will include:

- All plans and specifications listed in the Prescribed Burning standard (338)

In addition to core information, Chemical treatment of brush management will include:

- Herbicide name
- Rate of application or spray volume
- Acceptable planned date ranges of application
- Mixing instructions (if applicable)
- Any special application techniques, timing considerations, or other factors that must be considered to ensure the safest, most effective application of the herbicide (drift reduction additives for example)
- Reference to label instructions

In addition to core information, Biological treatment of brush management will include:

- Kind of biological agent or grazing animal to be used (i.e. goats)
- Timing, duration and intensity of grazing or browsing (i.e. 6 goats per half-acre paddock for 3 days)
- Desired degree of grazing or browsing use for effective control of target species (i.e. 80 percent 4 times over a 150-day grazing season)

- Maximum allowable degree of use on desirable non-target species (i.e. 50 percent)
- Special precautions or requirements when using insects or plants as control agents

For certification of application of this practice, document the actual applied data for the appropriate method of treatment described above.

OPERATION AND MAINTENANCE

Operation: Brush Management practices shall be applied using approved materials and procedures. Operations will comply with all local, state, and federal and tribal laws and ordinances.

Success of the practice shall be determined by evaluating regrowth or reoccurrence of target species after sufficient time has passed to monitor the situation and gather reliable data. Evaluation periods will depend on the methods and materials used. This period of time is usually at least several days and can be as much as one year depending on the target species and treatment method.

Maintenance: Following initial application, some regrowth, resprouting, or reoccurrence of brush should be expected. Spot treatment of individual plants or areas needing re-treatment should be done as needed.

REFERENCES

- <http://www.ag.ohio-state.edu/~ohioline/fact/0045.html>
- Ohio State University Fact Sheet F-45, Controlling Undesirable Trees, Shrubs, and Vines in your Woodland (Randall B. Heilgmann, Associate Professor of Forestry Extension Specialist, Forestry)
- <http://texnat.tamu.edu/publications/index>
- <http://muextension.missouri.edu/xplor/miscpubs/mp0581.htm>
- Forestry Herbicides for Weed Control in the Great Lake States, 1990, Lantagne, D.O. et al,

Michigan State University Extension Bulletin
E2219, April 1990.